Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Chronic graft versus host disease (cGVHD): percentage of patients with cGVHD who received calcium and vitamin D level testing within 3 months of diagnosis.

Source(s)

Proposed chronic graft versus host disease measure set: questionnaire, measures with specifications, glossary. Arlington Heights (IL): American Society for Blood and Marrow Transplantation; 26 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients with chronic graft versus host disease (cGVHD) who received calcium and vitamin D level testing within 3 months of diagnosis.

Rationale

The pathogenesis of chronic graft versus host disease (cGVHD) is poorly understood. Symptoms usually present within 3 years after allogeneic hematopoietic cell transplantation (HCT) and are often preceded by a history of acute GVHD. Manifestations of chronic GVHD may be restricted to a single organ or tissue or may be widespread. Chronic GVHD can lead to debilitating consequences, e.g., joint contractures, loss of sight, end-stage lung disease, or mortality resulting from profound chronic immune suppression leading to recurrent or life-threatening infections.

Support (verbatim) from National Institutes of Health (NIH) Consensus Development Project:
Musculoskeletal complications after hematopoietic cell transplantation (HCT) are caused by chronic GVHD

and its treatment with corticosteroids. The most frequent problems include fasciitis, sclerotic contractures and limitation in the range of motion, steroid-induced myopathy, and osteoporosis.

In patients with chronic GVHD, a baseline calcium (total and ionized) and vitamin D levels should be tested. These tests should be repeated at least annually when normal or as clinically indicated when abnormal or predicted to become abnormal.

Statements (verbatim) on gap: Bone mineral density declines measurably by 12 months post transplant in both males and females receiving allogeneic HCT, particularly if treated for chronic GVHD. Investigators report nontraumatic fractures in 11% of patients and avascular necrosis in 10% by 3 years post-transplant. In a different sample of survivors 10 years post transplant, osteoporosis rate was 18% and restricted to women.

Vitamin D (VD) deficiency can cause osteomalacia, bone pain, muscle weakness, fatigue, and increased risk of fracture, and may precipitate or exacerbate osteopenia and osteoporosis. Patients receiving treatment for acute myeloid leukemia (AML) or acute lymphoblastic leukemia (ALL) may have limited exposure to sunlight and often experience gastrointestinal side effects that may decrease their ability to maintain an adequate VD level. We hypothesized that patients with AML and ALL would have a low VD level after allogeneic HCT, and that these patients would have a high incidence of osteoporosis/osteopenia. We therefore studied the incidence of low VD level and low bone mineral density after HCT. Of 289 patients with AML or ALL undergoing HCT between January 1, 2000, and January 31, 2009, at the Cleveland Clinic, 58 (20.1%) patients had VD testing after HCT. Of these, 52 (89.7%) patients had a low VD level, and 6 (10.3%) had a normal level. Most patients with VD testing had GVHD and were taking corticosteroids (94.8% and 98.3%, respectively). Of the 49 patients with VD testing who also had bone mineral density testing, 65% had abnormal (low bone density) results. Only 21% of patients with VD testing were taking VD supplements prior to testing, and 65% had an elevated parathyroid hormone level. We found that most patients did not have VD testing after HCT, but those that did were very likely to have a low level and have low bone mineral density. Those with a low VD level were likely to have received corticosteroids, have GVHD, and have an elevated parathyroid hormone (PTH) level. Given the potential morbidity of low VD level, VD deficiency should be considered after HCT. Prospective study of VD level and its impact on morbidity and mortality after HCT is warranted.

Evidence for Rationale

Couriel D, Carpenter PA, Cutler C, Bolanos-Meade J, Treister NS, Gea-Banacloche J, Shaughnessy P, Hymes S, Kim S, Wayne AS, Chien JW, Neumann J, Mitchell S, Syrjala K, Moravec CK, Abramovitz L, Liebermann J, Berger A, Gerber L, Schubert M, Filipovich AH, Weisdorf D, Schubert MM, Shulman H, Schultz K, Mittelman B, Pavletic S, Vogelsang GB, Martin PJ, Lee SJ, Flowers ME. Ancillary therapy and supportive care of chronic graft-versus-host disease: national institutes of health consensus development project on criteria for clinical trials in chronic Graft-versus-host disease. Biol Blood Marrow Transplant. 2006 Apr;12(4):375-96. [146 references] PubMed

Filipovich AH, Weisdorf D, Pavletic S, Socie G, Wingard JR, Lee SJ, Martin P, Chien J, Przepiorka D, Couriel D, Cowen EW, Dinndorf P, Farrell A, Hartzman R, Henslee-Downey J, Jacobsohn D, McDonald G, Mittleman B, Rizzo JD, Robinson M, Schubert M, Schultz K, Shulman H, Turner M, Vogelsang G, Flowers ME. National Institutes of Health consensus development project on criteria for clinical trials in chronic graft-versus-host disease: I. Diagnosis and staging working group report. Biol Blood Marrow Transplant. 2005 Dec;11(12):945-56. PubMed

Proposed chronic graft versus host disease measure set: questionnaire, measures with specifications, glossary. Arlington Heights (IL): American Society for Blood and Marrow Transplantation; 26 p.

Sproat L, Bolwell B, Rybicki L, Dean R, Sobecks R, Pohlman B, Andresen S, Sweetenham J, Copelan E, Kalaycio M. Vitamin D level after allogeneic hematopoietic stem cell transplant. Biol Blood Marrow Transplant. 2011 Jul;17(7):1079-83. PubMed

Sullivan KM. Graft vs. host disease. In: Blume KG, Forman SJ, Appelbaum FR, editor(s). Thomas' Hematopoietic Cell Transplantation. 3rd ed. Malden (MA): Blackwell Publishing; 2004. p. 635-64.

Syrjala K. Assessment of quality of life in hematopoietic cell transplantation recipients. In: Blume KG, Forman SJ, Appelbaum FR, editor(s). Thomas' hematopoietic cell transplantation. Vol. 457Oxford (UK): Wiley-Blackwell; 2004. p. 510.

Primary Health Components

Chronic graft versus host disease (cGVHD); calcium level tests (total and ionized); vitamin D level tests

Denominator Description

The number of patients in your selection diagnosed with chronic graft versus host disease (cGVHD) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

The number of patients in your selection diagnosed with chronic graft versus host disease (cGVHD) AND having evidence of calcium (total and ionized) AND vitamin D testing AND testing completed within 3 months of diagnosis (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Reported incidence rates of chronic graft versus host disease (cGVHD) after allogeneic transplantation range from 6% to 80% according to recipient age, donor type, hematopoietic cell transplantation (HCT) source (peripheral blood, bone marrow, or umbilical cord blood stem cells), graft manipulation (T-cell depletion), and use of post transplantation donor lymphocyte infusion (DLIs). Reliable incidence estimates in different cohorts of HCT recipients are compromised by (1) lack of standardized, widely used diagnostic guidelines; (2) variability in observer experience; (3) limited expert follow-up at a distance from transplant centers; (4) differences in the statistical methods applied (e.g., use of the Kaplan-Meier versus cumulative incidence estimates and variable requirement for some minimal survival [60-100 days] for patients to be considered at risk of chronic GVHD); and (5) the sometimes protean nature of early chronic GVHD symptoms, which mimic alternative diagnoses.

Evidence for Additional Information Supporting Need for the Measure

Filipovich AH, Weisdorf D, Pavletic S, Socie G, Wingard JR, Lee SJ, Martin P, Chien J, Przepiorka D, Couriel D, Cowen EW, Dinndorf P, Farrell A, Hartzman R, Henslee-Downey J, Jacobsohn D, McDonald G, Mittleman B, Rizzo JD, Robinson M, Schubert M, Schultz K, Shulman H, Turner M, Vogelsang G, Flowers

ME. National Institutes of Health consensus development project on criteria for clinical trials in chronic graft-versus-host disease: I. Diagnosis and staging working group report. Biol Blood Marrow Transplant. 2005 Dec;11(12):945-56. PubMed

Remberger M, Aschan J, Lonnqvist B, Carlens S, Gustafsson B, Hentschke P, Klaesson S, Mattsson J, Ljungman P, Ringden O. An ethnic role for chronic, but not acute, graft-versus-host disease after HLA-identical sibling stem cell transplantation. Eur J Haematol. 2001 Jan;66(1):50-6. PubMed

Rocha V, Wagner JE Jr, Sobocinski KA, Klein JP, Zhang MJ, Horowitz MM, Gluckman E. Graft-versus-host disease in children who have received a cord-blood or bone marrow transplant from an HLA-identical sibling. Eurocord and International Bone Marrow Transplant Registry Working Committee on Alternative Donor and Stem Cell Sources. N Engl J Med. 2000 Jun 22;342(25):1846-54. PubMed

Sullivan KM, Agura E, Anasetti C, Appelbaum F, Badger C, Bearman S, Erickson K, Flowers M, Hansen J, Loughran T, et al. Chronic graft-versus-host disease and other late complications of bone marrow transplantation. Semin Hematol. 1991 Jul;28(3):250-9. [75 references] PubMed

Extent of Measure Testing

The Chronic Graft Versus Host Disease (cGVHD) measure set was developed by the American Society for Blood and Marrow Transplantation (ASBMT) using a rigorous methodology (adapted from the American Medical Association's Physician Consortium for Performance Improvement [AMA-PCPI] and including field testing) and adapted for use in Practice Improvement Modules (PIMs) by the American Board of Internal Medicine (ABIM).

Evidence for Extent of Measure Testing

Joseph TL. (Executive Director, American Society for Blood and Marrow Transplantation). Personal communication. 2013 Jan 21. 1 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Hospital Inpatient

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Clinical Practice or Public Health Sites

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

All ages

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

12 months

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Encounter

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

The number of patients in your selection diagnosed with chronic graft versus host disease (cGVHD)

Note: Patients can be included in the chart abstraction if:

They have been seen by the practice within the past 12 months; and
Management decisions regarding care are made primarily by providers in the practice.

Select at least 10 of your patients who have had hematopoietic cell transplant (HCT) and cGVHD. Refer to the original measure documentation for administrative codes.

Exclusions

Initial diagnosis made at another facility or institution

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

The number of patients in your selection diagnosed with chronic graft versus host disease (cGVHD) AND having evidence of calcium (total and ionized) AND vitamin D testing AND testing completed within 3 months of diagnosis

Note: This requires documentation in the patient's medical record that calcium AND vitamin D testing were completed within 3 months of diagnosis.

Exclusions

None

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Prescriptive Standard

Unspecified

Identifying Information

Original Title

Original Title

Patients with chronic GVHD who received calcium and vitamin D level testing within 3 months of diagnosis.

Measure Collection Name

Chronic Graft Versus Host Disease Measure Set

Submitter

American Society for Blood and Marrow Transplantation - Professional Association

Developer

American Society for Blood and Marrow Transplantation - Professional Association

Funding Source(s)

American Society for Blood and Marrow Transplantation

Composition of the Group that Developed the Measure

The American Society for Blood and Marrow Transplantation (ASBMT) Education Practice Improvement Modules Task Force:

Linda Burns, MD (*chair*)
Stephan A Grupp, MD, PhD
Mark B Juckett, MD
Vivek Roy, MD
Edward Agura, MD
Miguel-Angel Perales, MD
Thomas Joseph, MPS, CAE, ASBMT Executive Director
Sue Frechette, BSN, MBA Consultant

Financial Disclosures/Other Potential Conflicts of Interest

Conflicts, if any, are disclosed in accordance with the American Society for Blood and Marrow Transplantation (ASBMT) conflict of interest policy.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2012 Apr

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in February 2017.

Measure Availability

Source not available electronically.

For more information, contact the American Society for Blood and Marrow Transplantation (ASBMT) at 85 W. Algonquin Road, Suite 550, Arlington Heights, IL 60005; Phone: 847-427-0224; Fax: 847-427-9656; Web site: www.asbmt.org ; E-mail: mail@asbmt.org.

NQMC Status

This NQMC summary was completed by ECRI Institute on September 24, 2013. The information was verified by the measure developer on October 25, 2013.

The information was reaffirmed by the measure developer on February 8, 2017.

Copyright Statement

Production

Source(s)

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